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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/664,332	09/18/2000	Noriya Hayashi	001195	4422
23850	7590	05/28/2004	EXAMINER	
ARMSTRONG, KRATZ, QUINTOS, HANSON & BROOKS, LLP 1725 K STREET, NW SUITE 1000 WASHINGTON, DC 20006			SELLERS, ROBERT E	
			ART UNIT	PAPER NUMBER
			1712	

DATE MAILED: 05/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/664,332

Applicant(s)

HAYASHI, NORIYA

Examiner

Robert Sellers

Art Unit

1712

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 May 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 12, 17-19, 21-28 and 6019 is/are pending in the application.
- 4a) Of the above claim(s) 9, 17-19, 21, 23-26 and 28 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 6-8, 10, 12, 22, 27 and 28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 1712

1. The text of section 103(a) of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-3, 6-8, 10, 12, 22, 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamazu et al. Patent No. 5,359,017, Buchwalter et al. Patent No. 5,879,859, Starkey Patent No. 5,384,339 and Green Patent No. 4,252,592 in view of Green et al. Patent No. 4,299,938.

The rejection is maintained for the reasons of record set forth in the previous Office actions. The arguments filed May 13, 2004 have been considered but are unpersuasive.

2. The claims are directed to a composition comprising a photopolymerizable resin, an acid anhydride and a photopolymerization initiator "which makes it possible to cure by chain reaction said photopolymerizable resin." There is no requirement in the claims that a chain reaction curing take place. The claims are not directed to a process of curing the photopolymerizable resin in the presence of an acid anhydride and a photopolymerization initiator by a chain reaction mechanism.

3. The declaration filed May 13, 2004 attempts to distinguish the claimed possible chain reaction cure over the prior art photocuring. However, the claims are open to any composition containing a photopolymerizable resin, photoinitiator of formula (IV), (IV') or (V) and acid anhydride.

4. Hamazu et al. in particular discloses the elected species of 3,4-epoxycyclohexylmethyl-3',4'-epoxycyclohexanecarboxylate (col. 4, lines 15-16), the elected species of benzyl-4-hydroxyphenylmethylsulfonium hexafluoroantimonate (col. 3, lines 29-30, corresponding to claimed formula IV) and an acid anhydride (col. 5, line 14). The composition is cured by ultraviolet radiation (col. 22, lines 67-68 and col. 23, line 61 to col. 24, line 3) and is operable on such thick formulations as laminates, prepregs, molding compounds and sealing compounds (col. 5, lines 16-17).
5. The claimed compositions are curable by exposure to ultraviolet radiation (specification, pages 66-67, Example 2). Accordingly, based on the same photopolymerizable resin, the same photopolymerization initiator and an acid anhydride as claimed, the blend of Hamazu et al. can also possibly be cured by chain reaction.
6. The compositions of Buchwalter et al., Starkey and Green '592 are prepared from cycloaliphatic diepoxides, an anhydride such as the elected species of maleic anhydride (Buchwalter et al., col. 6, lines 64-66 and Starkey, col. 20, lines 38-39) and a aromatic sulfonium salt photoinitiator which is cured by ultraviolet radiation. It would have been obvious to employ the benzyl-4-hydroxyphenylmethylsulfonium hexafluoroantimonate of Hamazu et al. as the photopolymerization initiator of Buchwalter et al., Starkey and Green '592 in order to optimize the cure rate.


Art Unit: 1712

7. None of the examples referred to in the declaration compares the closest prior art composition of Hamazu et al. (cols. 22-24, Example 53) containing 3,4-epoxycyclohexylmethyl-3',4'-epoxycyclohexanecarboxylate and a photopolymerization initiator conforming to claimed formula (IV) wherein R^6 is a nitro group, R^7 is hydrogen and X^- is SbF_6^- . Furthermore, the evidence is not commensurate in scope with the claims regarding a representative sampling of the myriad species embraced by the broadly claimed confines of the photopolymerizable resin, the untested photopolymerization initiators within formula (IV') and (V), and the content of photopolymerization initiator of from 0.1-10 parts by weight per 100 parts by weight of the composition.

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

(571) 272-1093 (Fax no. (703) 872-9306)
rs 5/25/04



ROBERT E.L. SELLERS
PRIMARY EXAMINER